

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/KR2005/000036

**A. CLASSIFICATION OF SUBJECT MATTER****IPC7 H01L 33/00**

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H01L H01S

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean Patents and applications for inventions since 1975

Korean Utility models and applications for Utility models since 1975

Japanese Utility models and application for Utility models since 1975

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

e-KIPASS; "LED", "REFLECT", "ELECTRODE", "UNEVEN", "ROUGH"

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y A	US 2001/0048113 A1 ( TAEK KIM ) 6 DECEMBER 2001 see the abstract, figures 1-9, claim 1	1-6 7-16
Y A	US 6504180 B1 ( IMEC VZW AND VRIJE UNIVERSITEIT ) 7 JANUARY 2003 see the abstract, column 16 line 15 - line 37, figure 12	1-6 7-16
A	US 2003/0062530 A1 ( KABUSHIKI KAISHA TOSHIBA ) 3 APRIL 2003 see the abstract, paragraph [0087], claims 1-24, figures 1-9	1-16
E, Y E, A	KR 2005-0003671 A ( EPIVALLEY CO., LTD. ) 12 JANUARY 2005 see the abstract, figure 5	1-6 7-16

☐ Further documents are listed in the continuation of Box C.☒ See patent family annex.

\* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&amp;" document member of the same patent family


Date of the actual completion of the international search

15 APRIL 2005 (15.04.2005)

Date of mailing of the international search report

**15 APRIL 2005 (15.04.2005)**

Name and mailing address of the ISA/KR



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**INTERNATIONAL SEARCH REPORT**

Information on patent family members

International application No.

PCT/KR2005/000036

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2001/0048113 A1	06.12.2001	KR 1019980082472 A US 6420735B B	05.12.1998 16.07.2002
US 6504180 B1	07.01.2003	DE 69803519 T2 EP 00890830 A1 EP 00890830 B1 EP 00977063 A1 EP 00977064 A1 EP 00977277 A1 EP 00977280 A2 ES 2168703 T3 JP 11030559 A2 JP 12098180 A JP 12106454 A KR 1019990013488 A US 2003075723 A1 US 6318901BA US 6623171 BB US 6812161 BB US 2002050561 AA US 6186009 BA	08.08.2002 13.01.1999 23.01.2002 02.02.2000 02.02.2000 02.02.2000 02.02.2000 16.06.2002 02.02.1999 07.04.2000 11.04.2000 25.02.1999 24.04.2003 20.11.2001 23.09.2003 02.11.2004 02.05.2002 13.02.2001
US 2003/0062530 A1	03.04.2003	JP 3469484 B2 JP 12196152 A US 6495862 BA	25.11.2003 14.07.2000 17.12.2002
KR 2005-0003671 A	12.01.2005	WO 2005/004247 A1	13.01.2005